CLAIMS

What is claimed is:

1. A polymer-type humidity sensor comprising:

a polymer structure of a predetermined shape, wherein said polymer structure comprises a natural rubber and carbon; and

a pair of electric terminals contacting said polymer structure.

2. The polymer-type humidity sensor of claim 1, wherein the carbon added to said polymer structure is in a range of 15-20% ± 5% volume.

3. The polymer-type humidity sensor of claim 1, wherein the polymer-type humidity sensor has a resistance in a range of 500 kΩ - 2 MΩ.

4. The polymer-type humidity sensor of claim 1, wherein the polymer-type humidity sensor has an impedance of $2x10^6$ Ω and $5x10^5$ Ω at a relative humidity range of 0% and 100% and undergoes impedance change as a function of relative humidity over the whole relative humidity range.

5. The polymer-type humidity sensor of claim 1, wherein the natural rubber is NBR-Acrylic-Nitric Butadiene rubber.

6. The polymer-type humidity sensor of claim 5, wherein the carbon added to said polymer structure is in a range of 15-20% ± 5% by volume of said polymer structure.

7. The polymer-type humidity sensor of claim 6, wherein the polymer-type humidity sensor has a resistance in a range of 500 kΩ - 2 MΩ.

8. The polymer-type humidity sensor of claim 7, wherein the polymer-type humidity sensor has an impedance of $2x10^6$ Ω and $5x10^5$ Ω at a relative humidity range of 0% and 100% and undergoes an impedance change as a function of relative humidity over the whole relative humidity range.

9. The polymer-type humidity sensor of claim 8, wherein said electric terminals are

situated within said polymer structure at predetermined locations and extend outward from said polymer structure.

10. The polymer-type humidity sensor of claim 8, wherein said electric terminals are situated externally and contact outer portions of said polymer structure.

11. The polymer-type humidity sensor of claim 8, wherein the predetermined shape includes a planar surface to contact a gas having humidity.

12. The polymer-type humidity sensor of claim 8, wherein the predetermined shape includes a rounded surface to contact a gas having humidity.

13. The polymer-type humidity sensor of claim 12, wherein the predetermined shape is a cylindrical shape having said electrical terminals at opposing ends.

14. The polymer-type humidity sensor of claim 12, wherein the predetermined shape is a coil shape having said electrical terminals at edges of the coil shape.

15. A polymer structure to act as a sensing structure of a polymer-type humidity sensor, comprising:

a natural rubber; and

carbon mixed in said rubber.

16. The polymer structure of claim 15, wherein the natural rubber is NBR-Acrylic-Nitric Butadiene rubber.

17. The polymer structure of claim 16, wherein an amount of said carbon added to the polymer structure is in a range of 15-20% ± 5% by volume of the polymer structure.

18. The polymer structure of claim 17, wherein the polymer-type humidity sensor has a resistance in a range of 500 kΩ - 2 MΩ.

19. The polymer structure of claim 18, wherein the polymer-type humidity sensor has an impedance of $2x10^6$ Ω and $5x10^5$ Ω at a relative humidity range of 0% and 100% and

undergoes an impedance change as a function of relative humidity over the whole relative humidity range.

20. A microwave oven to cook food comprising:

a body including a cooking cavity;

a heating element to cook the food in the cooking cavity;

an air outlet unit to discharge air from the cooking cavity;

a control unit which controls the cooking of the food; and

a polymer-type humidity sensor disposed at said air outlet to obtain information on a humidity content of the discharged air for use by said control unit, wherein said polymer-type humidity sensor comprises

a polymer structure of a predetermined shape and having a natural rubber and carbon, and

a pair of electric terminals contacting the polymer structure.

21. The microwave oven of claim 20, further comprising a cooling fan which draws atmospheric air into the cooking cavity while cooling said heating element.

22. The microwave oven of claim 20, wherein an amount of said carbon added to the polymer structure is in a range of 15-20% ± 5% by volume of the polymer structure.

23. The microwave oven of claim 22, wherein the polymer-type humidity sensor has a resistance in a range of 500 kΩ - 2 MΩ.

24. The microwave oven of claim 23, wherein the polymer-type humidity sensor has an impedance of $2x10^6$ Ω and $5x10^5$ Ω at a relative humidity range of 0% and 100% and undergoes an impedance change as a function of relative humidity over the whole relative humidity range.

25. The microwave oven of claim 24, wherein the natural rubber is NBR-Acrylic-Nitric Butadiene rubber.

26. A polymer type-humidity sensor comprising:

a polymer structure having opposing ends, wherein said polymer structure comprises a

rubber and carbon; and

electric terminals, each contacting a corresponding one of the opposing ends of said polymer structure.

27. The polymer type-humidity sensor of claim 26, wherein said polymer structure is a cylindrical shape having said electrical terminals at the opposing ends of the cylindrical shape.

28. The polymer type-humidity sensor of claim 26, wherein said polymer structure comprises a prismatic shape having said electrical terminals at the opposing ends of the prismatic shape.

29. The polymer type-humidity sensor of claim 28, wherein the prismatic shape has a rectangular cross-section.